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Title: Regenerative Failure and Attribution: Examining the Underlying Processes Affecting Learning

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Purpose: This study focuses on the underlying processes that occur between entrepreneurs' primary attributions for failure and their emergent learning from the experience, in the context of regenerative failure.

Approach: The research centres on twenty-one entrepreneurs operating in the Producing Services Sector, a major subsector of the Irish Information and Communication Technology (ICT) industry. All experienced business failure and subsequently re-entered the entrepreneurial sphere at a later date (i.e. regenerative failures). A qualitative approach examines entrepreneurs' attributions for failure, responses to failure, and learning dimensions from failure.

Findings: Four types of failure attributions are uncovered – 1) internal individual-level; 2) external firm-level; 3) external market-level; 4) hybrid attributions. Attributions impact entrepreneurs' responses to failure and ultimately impact entrepreneurial learning. When failure is primarily attributed to internal factors, the entrepreneur's response is largely affective, leading to deep, personal learning about oneself. External attributions (both firm- and market-level) result in a predominantly behavioural response, with learning focused on the venture, networks, and relationships. Those primarily attributing failure to hybrid factors have a largely cognitive response and learn about venture management.

Research Limitations: This is a retrospective analysis of business failure.

Original Value: This paper contributes to the growing literature on entrepreneurs' attributions for business failure by focusing on regenerative failure; furthermore it details the link between attributions for, responses to, and learning from, failure. The key contribution to knowledge is encapsulated in the model of the underlying processes affecting learning from failure for regenerative entrepreneurs.

Keywords: Business failure; attribution theory; entrepreneurial learning; regenerative failure; hybrid attributions.

Paper Type: Research paper

Introduction

Interest in business failure and exit has sustained in both the popular (e.g. Hammett, 2016; Gray, 2016) and academic press (see Mandl *et al.*, 2016; Jenkins and McKelvie, 2016). However, our understanding of business failure remains overly simplified (Wennberg and DeTienne, 2014) and renewed calls for research have been issued (Alberti, 2013; Walsh and Cunningham, 2016). Increasingly studies on entrepreneurship are concerned with psychological factors, encompassing cognition, motivation, emotion, and affect (Baum *et al.*, 2014). Research of this nature provides a greater understanding of the entrepreneur as an individual actor. Yet despite this renewed focus there remains a dearth of research conducted at the individual level (Khelil, 2016).

When considering business failure the distinction between firm and individual level research is important. At the firm level past research was preoccupied with the causes of business failure (Keasy and Watson, 1987; Bruno and Leidecker, 1988; Miles and Snow, 1992; Lurie, 1992; Gaskill *et al.*, 1993; Richardson, *et al.*, 1994). However at the individual level the focus shifts to entrepreneurs' "causal ascriptions of failure" (Yamakawa and Cardon, 2015: 800). Understanding the factors an entrepreneur attributes failure to, goes beyond ascribing blame. The way in which entrepreneurs perceive and attribute failure influences their eventual learning (Mantere *et al.*, 2013; Cope and Watts, 2000) and may have performance implications for future ventures (Yamakawa, *et al.*, 2015).

The link between attribution and learning is recognised within the literature (Eggers and Song, 2015; Mantere *et al.*, 2013; Shepherd, 2009; Shepherd and Cardon, 2009; Yamakawa, Peng, and Deeds, 2010; Shepherd, Patzelt, and Wolfe, 2011), however the mechanism behind this link remains unclear (Yamakawa and Cardon, 2015). In the aftermath of failure one's cognitive, affective, and behavioural responses to failure are important to consider (Ucbasaran *et al.*, 2013); these responses are likely to be impacted by entrepreneurs' attributions for firm failure (Yamakawa *et al.*, 2015). Furthermore, if an entrepreneur relinquishes responsibility for the failure this can detract from any potential lessons they may learn from the experience (Mantere *et al.*, 2013; Shepherd 2003). This study seeks to build on the work of Yamakawa and Cardon (2015 – attribution), Ucbasaran and colleagues (2013 – recovery/responses),

and Cope (2011 - learning), as a means of shedding light on the underlying processes that occur between attribution and learning.

Learning from failure has been the subject of numerous studies (Cope, 2005; 2011; Ucbasaran *et al.*, 2010; 2013) yet the “mechanism or process of learning from failure remains a black box” (Yamakawa and Cardon, 2015: 797). Since many entrepreneurs leave business through a revolving door rather than a one-way exit (Stokes and Blackburn, 2002) learning from failure is a topic that warrants further examination (Ucbasaran *et al.*, 2013). Cope (2011) developed the term regenerative failure to refer to those that experience failure and go on to re-enter the entrepreneurial process by creating a new venture. Whilst attribution is considered important for learning (Mantere *et al.*, 2013), the link between the two is only partially understood (Yamakawa and Cardon, 2015). From a theoretical perspective examining business failure through the lens of attribution theory is likely to enhance understanding of the theory as it has been “relatively neglected” in entrepreneurship research on new venture prosperity (Harvey *et al.*, 2014: 141). Furthermore present “attribution literature does not capture the specifics of the entrepreneurial condition” as there are conflicting findings on the theory’s unique applicability to entrepreneurs (Mantere *et al.*, 2013: 460).

This study aims to open the “black box” of entrepreneurial learning from failure, drawing on prior studies of attribution (Yamakawa and Cardon, 2015), recovery/responses (Ucbasaran *et al.*, 2013), and learning (Cope, 2011). Exploring attribution in conjunction with learning is highly relevant; a recent study by Yamakawa and Cardon (2015) argues that learning is amplified when entrepreneurs are willing to accept internal attributions for failure. However the process by which learning takes place remains unclear (Yamakawa and Cardon, 2015). Focusing on the processes that occur between attribution and learning will facilitate understanding of the underlying learning process from failure. The paper explores whether different primary attributions for failure (e.g. internal or external) result in particular entrepreneurial responses to the failure experience (e.g. cognitive, affective, and behavioural). The study also examines the way in which attributions and responses are linked to established learning dimensions developed by Cope (2011).

Twenty-one entrepreneurs operating in the Producing Services Sector, a major subsector of the Irish Information and Communication Technology (ICT) industry, are the focus of this study. Following a failure experience all entrepreneurs subsequently re-entered the entrepreneurial sphere at a later date (i.e. regenerative failure). An in-depth exploration of the literature and key underpinning theoretical arguments will follow; the literature overview focuses on the concept of business failure, the use of attribution theory, the various responses to failure, and contemporary research related to learning from failure. A description of the research methodology and analytical process is then presented. Finally there is a discussion of the primary results; conclusions and suggestions for future research make up the final part of the paper.

Theoretical Considerations

Defining Business Failure

The difficulties involved in developing a deeper understanding of business failure begin with the lack of a universally accepted definition of business failure (for an extensive debate on this topic see Ucbasaran *et al.*, 2013). Bruno and Leidecker (1988: 51) frame the conundrum by noting that “no two experts agree” on its definition. Given this study’s exploration of entrepreneurs’ failure experiences, and the fact that adopting a qualitative approach will enable further understanding of each individualised failure process, the authors have chosen to employ Ucbasaran and colleagues (2013: 188) definition, which specifies business failure as “the cessation of involvement in a venture because it has not met a minimum threshold for economic viability as stipulated by the entrepreneur”.

Entrepreneurs’ Attributions for Firm Failure

Researchers have begun to explore entrepreneurs’ causal ascriptions of failure using attribution theory (Mandl *et al.*, 2016; Yamakawa *et al.*, 2015; Rogoff *et al.*, 2004; Zacharakis *et al.*, 1999; Mantere *et al.*, 2013). The theory’s core principal maintains that “people search for understanding, seeking to discover why an event occurred”, be it positive or negative (Weiner 1986: 292; Heider, 1958; Kelley, 1971). Attribution theory is well established in the social psychology literature (Weiner, 1985; 1986; Kelley and Michela, 1980), yet use of the theory to explore business failure is limited

(Yamakawa *et al.*, 2015; Yamakawa and Cardon, 2015; Franco and Haase, 2010; Rogoff *et al.*, 2004; Zacharakis *et al.*, 1999; Mantere *et al.*, 2013).

Attributions can be classified using three dimensions – *locus of causality*, *controllability*, and *stability* (Weiner, 1985). Locus of causality identifies whether the failure is due to factors internal to the individual, or external to the individual. Controllability relates to whether the individual believes they had control, or not, over the cause of failure. Stability is concerned with whether or not the individual perceives the causes of failure to remain stable, as opposed to unstable, over time (Weiner, 1985; 1986). When an individual is attributing failure, factors that are seen as internal are oftentimes considered controllable whilst those external are uncontrollable (Yamakawa and Cardon, 2015). Locus of causality and stability are also inter-related as factors considered internal are usually unstable (changeable) whilst those that are external are stable (enduring). Arguably locus of causality is the most important dimension to consider when exploring attributions for business failure (Yamakawa *et al.*, 2015; Weiner, 1985) and it is one of the most studied (Zacharakis *et al.*, 1999; Yamakawa and Cardon, 2015). Furthermore its relevance when considering learning from failure is clear; locus of causality pertains to the origin of the failure (either internal to the individual or external to the individual) it allows for identification of the source of failure and therefore informs where corrective action can be taken going forward (Yamakawa *et al.*, 2015; Ford, 1985).

Attribution theory focuses on the “causal explanations given for event” (Kelley and Michela, 1980: 460). Early work incorporating attribution theory tends to regard individuals as naïve bystanders of events trying to understand the causes of a phenomenon they observe and experience (Heider, 1958). However when considering attribution theory in the context of business failure its important to note that rather than business failure being a discrete episodic event, it is a complex process (Ucbasaran *et al.*, 2013). The nature of the construct is constantly evolving as ventures, markets, and industries are all subject to change. In addition to failure being attributed to factors internal or external to the individual, on another level, one also needs to consider rather the individual attributes failure to factors internal or external to the firm. In the early stages of business development the entrepreneur and the firm are inextricably linked, as Cope (2003: 440) notes, “the emotional complexity and

intimacy of the relationship between the entrepreneur and the small business is unique”. Entrepreneurs often form a personal connection to their firm and see it as an extension of themselves (Cardon *et al.*, 2005); the existence of such a relationship has the potential to make failure deeply personal even if it is attributed to factors outside of the individuals’ control.

Taking this into consideration this study explores attributions for failure using a layered approach, whereby attributions are – 1) individual level: internal to the entrepreneur; 2) firm level: external to the entrepreneur but internal to the firm; 3) market level: external to both the entrepreneur and the firm; 4) hybrid: a mix of the previous three. Such an approach allows the researchers to identify both internal and external failure attributions, in addition to the degree of control that exists between the individual and their perceived cause of failure. As the study is concerned with the processes that take place between attribution and eventual learning, and the link between attributions and learning outcomes, accurately identifying entrepreneurs’ attributions is the first step in unlocking the “black box” of learning. Recent research by Yamakawa *et al.* (2015) concludes that entrepreneurs’ attributions for firm failure impact their cognitive, affective, and behavioural responses to failure. Such responses, in turn, can impact entrepreneurial learning from the failure experience (Shepherd, 2003).

Cognitive, Affective, and Behavioural Responses to Failure

Business failure elicits various reactions from entrepreneurs, namely, cognitive, affective, and behavioural responses (Ucbasaran *et al.*, 2013; Yamakawa *et al.*, 2015). Entrepreneurs’ responses are likely to be impacted by their attributions for failure (Yamakawa *et al.*, 2015) and may influence eventual learning from the failure experience (Cope, 2011; Shepherd, 2009). Delineating and separating cognitive, affective, and behavioural responses to business failure is difficult; responses tend to be iterative; the individual cycles between understanding, processing, and reacting to their failure experience (Shepherd and Cardon, 2009). The sensemaking perspective highlights the spillovers and interactions between response types (Byrne and Shepherd, 2015; Wolfe and Shepherd, 2015). Sensemaking involves interpreting and understanding the failure event through shared meanings and emotion (see Maitlis and Sonenshein, 2010 for a full discussion). Negative and positive emotions are found to

impact cognitions and behaviours when an individual is engaged in sensemaking (Wolfe and Shepherd, 2015). Furthermore Shepherd (2003; 2009) highlighted how affective responses influence behavioural reactions to business failure.

In a different vein Cope (2011) proposed that entrepreneurs initially psychologically remove themselves from the failure in order to heal; then they focus on making sense of the failure and finally they move on and explore other opportunities. Different negative emotions arise from various sources with diverse affects on cognition (Bodenhausen et al., 1999). Ucbasaran and colleagues (2013: 191) question whether “different business failures have different psychological outcomes because they generate different types of negative emotions affecting cognitive processes in distinct ways”. This insight further highlights the iterative nature of entrepreneurial responses to failure; they cycle between cognitively understanding the failure, processing the emotions arising from the failure, and actively overcoming the obstacle of failure in order to move on with their professional and personal lives.

Entrepreneurs’ responses are explored as a means of understanding the link between attributions and learning. The research focuses on regenerative entrepreneurs’ primary response to failure, that is the individuals initial, dominant response, and whether it is cognitive, affective, or behavioural in nature. Given the exploratory nature of this research, focusing on entrepreneurs’ dominant, initial response, enabled the researchers to remove excess complexity (examining the iterative, cyclical nature of responses would be best suited to a longitudinal study) and explore the entrepreneurs’ experiences in the immediate aftermath of failure.

Entrepreneurial Learning from Failure

Entrepreneurial learning is defined as the “learning experienced by entrepreneurs during the creation and development of a small enterprise” (Cope, 2005: 374). Scholarly interest on entrepreneurial learning has grown since 2000 (for a comprehensive overview see Wang and Chugh, 2014). The work of Cope (2000; 2003; 2005; 2011) has been instrumental in formulating entrepreneurial learning theory through phenomenological analysis (Pittaway and Thorpe, 2012). Entrepreneurial learning theory proposes that discontinuous experiences during the entrepreneurial process stimulates higher forms of learning important to the

entrepreneur, both personally and professionally (Cope, 2003; Minniti and Bygrave, 2001; Cope 2011). Failure is one such discontinuous event, thus it is merited as an important learning tool (Cope, 2011; McGrath and Cardon, 1997; Schoemaker and Gunther, 2006; Ucbasaran *et al.*, 2010). To understand the learning cycle associated with failure it is essential to examine whether the learning reported by entrepreneurs is applied in a new firm context (Yamakawa and Cardon, 2015; Jenkins, 2012; Cope, 2011; Singh *et al.*, 2007). Learning is neither guaranteed nor instantaneous (Shepherd, 2003) and despite the increased interest (Cope 2011; Minniti and Bygrave 2001; Shepherd 2003; Ucbasaran *et al.*, 2013), it is a process that as yet remains unclear (Yamakawa and Cardon, 2015). It is the “distinctly personal dimension” of failure that makes it “such a powerful learning experience” (Cope, 2011: 617).

Cope (2005) identified four broad themes that encompass entrepreneurial learning from failure. Firstly, *oneself*, the failure experience allows for immense learning about self (strengths, weakness, skills, attitudes, beliefs) and the areas one needs to develop. It is transformative learning that enables entrepreneurs to better understand themselves. Secondly, *the venture*, an entrepreneur gains greater perspective on the strengths and weaknesses of the venture, in addition to understanding the reasons for the failure. Thirdly, *networks and relationships* is an opportunity for social learning outcomes. Entrepreneurs learn about the nature and management of relationships both within the firm and in their wider network. Fourthly, *venture management*, this learning outcome transcends the specific failure context and equips entrepreneurs with the skills needed to lead and manage entrepreneurial pursuits. An entrepreneur learns the effective management of business in relation to the wider environment.

Essentially learning from failure can be highly personal or it can be far-reaching, either way it is a tailored, individualized learning experience that cannot be taught, merely attained through practice (Kriegesmann *et al.*, 2005). Shepherd (2003: 325) states that for learning to be useful, it “must be applied to another business”. Thus in order to ascertain true learning from failure it is important to focus on entrepreneurs that have re-entered entrepreneurship, thereby completing the learning cycle. Re-entry is an important component of the entrepreneurial process since “all entrepreneurs irrespective of whether they succeeded or failed in their first venture, are more likely to start another venture than novice entrepreneurs” (Nielsen and Sarasvathy, 2011: 7);

this further emphasizes the importance of learning from failure. According to Cope (2011) regenerative failures are a particular subset of failures, essentially, those that experience failure go on to apply the lessons they learned by actively re-engaging with the entrepreneurial process and creating a new venture. However his research on the phenomenon was limited (only one participant in his study of eight was classified as a regenerative failure).

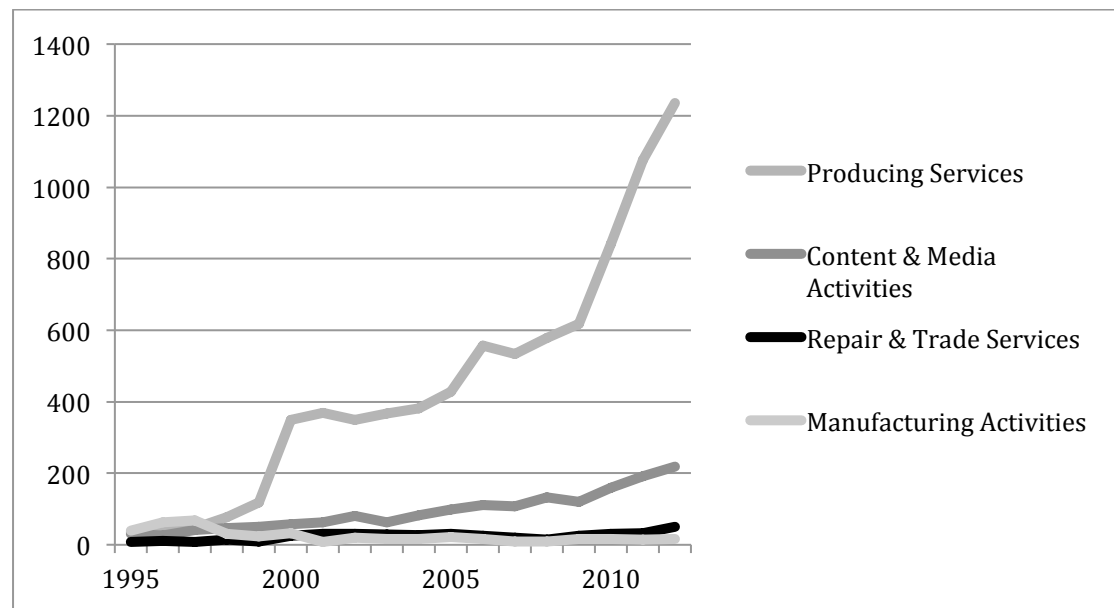
This study concentrates on the processes that occur between attribution for failure and the learning dimensions emerging from failure, in the context of regenerative failure. Using attribution theory as a lens to better understand entrepreneurs' responses to failure enables the researchers to uncover the antecedents of learning. Thus the research question addressed is:

Are different learning outcomes from a failure experience preceded by differing cognitive, affective, and behavioural responses, and in what way are these responses impacted by regenerative entrepreneurs' attributions for failure?

Methodological Considerations, Data Collection and Analysis

By their nature there is a dearth of available data on private firms (Ozmel *et al.*, 2013). Given the study's exploration of entrepreneurs' individualised experiences, a qualitative, in-depth study is most appropriate. The study is set in the Producing Services Sector of the Irish ICT industry. The sector is important to the Irish economy particularly with respect to exports and has grown exponentially in recent years (see Figure I). This sector is identified using NACE sector codes (including 58.2 – Software publishing; 61 – Telecommunications; 62 – I.T. service activities).

Figure I Breakdown of Firms Incorporated in ICT Industry



Source: FAME, 2013¹

The study consisted of two phases. The first phase involved selecting a comprehensive database in order to conduct a systematic firm level analysis of business failure. The FAME database was used as it contains comprehensive information including company financials, directors and their contacts details, original filings as filed at the Companies Registration Office (CRO), and detailed corporate structures. In refining the dataset of companies the authors set the following parameters:

- 1) A registered office address in the Republic of Ireland
- 2) Private in the legal sense
- 3) Incorporated between 01/01/97 and 31/12/07
- 4) Currently inactive (dissolved, in liquidation, inactive {no precision})
- 5) Firm that ceased trading within five years of start-up
- 6) Firms in which the entrepreneur is currently the director of a still trading firm

The first four search constraints resulted in identifying 2,220 entrepreneurs. This was

¹ Figures derived from the FAME database through use of the following search queries:

- Firms in the ICT industry as segmented by NACE Rev.2
- Firms with a registered office address and/or primary trading address in the Republic of Ireland.
- Firms incorporated each year from January 1st through to December 31st.

narrowed down to 203 potential entrepreneurs when the remaining two parameters were used. The fifth constraint addresses the phenomenon that historically younger firms are regarded as being more susceptible to failure (Dunne, *et al*, 1989; Audretsch, 1995; Thornhill and Amit, 2003). The sixth insures founders are regenerative failures, thus being more candid about their experience as they have recovered and moved on from the failure.

Given the sensitivities surrounding business failure the researchers were aware of the difficulties getting participants for the study, as such all 203 individuals in the dataset² were systematically contacted. Ultimately a set of 30 entrepreneurs participated in the study – 2 females and 28 males, ranging in age from 22 to 65 at time of incorporation. Semi-structured interviews were conducted with each entrepreneur, these averaged 45 minutes per interview, equating to over 120,000 words / 400 pages of transcripts. Secondary source data on the firms was collected and collated with the primary data. The authors devised an interview protocol, informed by the literature, to ensure key topics relevant to the research question were explored in the interviews. In the second phase of the study NVivo (qualitative data analysis software) was used to analyse the interview transcripts. Given this study's focus on enhancing and building upon Cope's (2011; 2005; 2003) research on learning from regenerative failure, the researchers aligned with Cope's (2011) concept of failure, which cautions against conflating closure with failure. For this reason entrepreneurs that voluntarily terminated their venture (e.g. the pursuit of more appealing opportunities) were excluded from this research, thereby reducing the number of participants from 30 to 21.

Data Analysis

Analysis of the data followed the established norms of inductive, theory-building research (Strauss and Corbin, 1990; Miles and Huberman, 1994; Creswell, 2007). This began with first-order coding; which involved reading the interview transcripts to identify *provisional codes* that were deemed potentially relevant to addressing the proposed research question (see Table 1). Entrepreneurs attributed the failure of their

² A letter, describing the nature, context and objectives of the research project was circulated to all 203 potential interviewees. Follow-up contact was through LinkedIn, email and telephone. Semi-structured interviews – the first six interviews that were face-to-face in order to gauge the entrepreneurs' reactions and ensure the correct meaning was obtained from each question. Once satisfied the remaining twenty-four interviews were conducted via telephone/skype.

firms to multiple ascriptions, however, in the interest of clarity the primary attributions were focused on for the analytical stage of the study. Chunks of text from the interview transcripts were assigned to relevant provisional codes. This was an iterative process, the transcripts were read and reread, and the data coded and recoded multiple times as the researchers carried out constant comparison techniques. The codes were consequently fine-tuned into *theoretical subcategories*.

Next the process of second-order coding began. At this stage potential themes were emerging, and patterns in the data became increasingly apparent. These emerging patterns were coded as *thematic categories* (data that contributed to the development of these categories are displayed on Table 2). As the thematic categories were identified the data was revisited constantly in order to test the validity of the emerging themes (Creswell, 2007; Miles and Huberman, 1994). The authors then raised the level of abstraction and grouped entrepreneurs' primary failure attributions into the relevant dimension – individual, firm, market and hybrid. The next phase of the analytical procedure involved exploring the entrepreneurs' responses and learning, with related data being coded from the transcripts. The final two columns on Table 1 highlight the second order coding of responses and learning dimensions, as they relate to primary failure attributions. In the following section the study's findings are discussed in detail.

Table 1 Data Structure Overview

First order coding			Second order coding		
Provisional coding	Theoretical Subcategories	Thematic categories	Attribution Dimension	Primary Response	Learning Dimension
Descriptions of professional experience/qualifications	Engineering v managerial	Inexperience	Internal Individual Level	Affective (Emotional)	Oneself
Descriptions of prior practical experience	Lack of practical experience				
Statements about being involved in too many things	Divided loyalties	Commitment			
Statements about not investing enough financially	Lack of financial commitment				
Descriptions of harmful commitment to the idea	Myopic Over-commitment				
Descriptions detailing a lack of market research	Insufficient market research	Poor market research	External Firm Level	Behavioural (Clinical)	The Venture
Descriptions of business existing solely to serve one stakeholder	Over reliance on one stakeholder	Excessive niche market focus			
Descriptions of business focusing on an extremely narrow sector	Excessively niche market				
Descriptions of market disintegration	Market collapse/contraction	Market turbulence	External Market Level	Behavioural (Pragmatic)	Networks and Relationships
Statements about the impact of technological advancement	Excessively advanced technology	Venture timing	Hybrid	Cognitive (Reflective)	Venture Management
Descriptions about the impact of regulatory changes	Regulatory changes				
Statements detailing difficulty in accessing capital	Difficulty accessing finance	Access to capital			

Findings

An overview of the findings is provided in Table 1. The following sections explore the three key components of this study in detail – attributions, responses, and learning. The interaction between all three leads to the development of a model of the underlying processes affecting learning from failure (see Figure 2). Uncovering the processes that occur allows the authors to highlight the links between attribution and learning.

Attributions for Failure

Eight entrepreneurs primarily ascribed the failure of their firm to ***internal individual-level attributions***. This includes inexperience, and commitment. Firstly inexperience was an issue as the majority of entrepreneurs in the study were engineers, with many having little or no prior business experience. The lack of significant managerial experience negatively impacted their preparedness for leading their own business. This led E5 in particular to take a business development diploma following the failure, as he “*recognised that (he) needed to develop those skills*”. Commitment emerged as another attribution for failure. The entrepreneurs were so committed to their firm that they were myopic to the problems it was facing. This led them to make irrational decisions based on emotion rather than strategy. E8 captured this sentiment by stating, “*realistically we should have pulled the plug about 6 months before that but vanity, ego kept it going*”. Had they reacted sooner they could have pursued more attractive opportunities rather than continuing to invest further in an ultimately lost cause.

Five entrepreneurs in the study cited ***external firm-level ascriptions*** as primary attributions for failure. This includes inadequate market research and an excessively niche market. Inadequate market research negatively impacted firms’ success as they did not sufficiently understand the competitors, consumers, demand and sales, in addition to the informal business culture that permeates the Irish market. Excessive niche market focus was a consequential factor arising in part from insufficient market research, it encapsulates the constraining nature of focusing on too niche a market with a limited pool of customers, and in some cases only one customer. The over-reliance on few customers placed the firms in a precarious position, which ultimately contributed to the failure of the firm. Three entrepreneurs primarily attributed their business’ failure to ***external market-level ascriptions***, encapsulated by market turbulence. The industry was undergoing massive upheaval and speculation; industry players were “*running around like headless chickens*” leading to “*spectacular failures*” (E14). The uncertainty led to rumours and unpredictability. The terminology used in reference to the sector illustrates the precariousness – “*firms just disappearing, that whole business evaporating*” E15.

Finally, five entrepreneurs primarily ascribed the failure of their firm to ***hybrid***

attributions. Hybrid attributions encompass aspects of individual, firm and market/industry level attributions simultaneously. It includes venture timing, and access to capital. Venture timing is hybrid as it includes issues such as changes in the market (market/industry) and poorly timed market entry (individual/firm). Timing was important in the changing landscape where firms were vying for success or even existence. Entrepreneurs felt they had either not capitalised on the opportunity on time or, the concept was too innovative, as E19 pointed out the *“immaturity of the technology at the time was difficult”*. Other issues stemming from timing include regulatory changes and *“coming in reasonably late to (a VC) fund”* (E18), which reduced the chances of subsequent rounds of financial investment. The second hybrid attribution is access to capital. This stems from tightened credit controls in lending institutions (market/industry) and an inability to sufficiently manage firm capital appropriately (individual/firm). In some cases the entrepreneurs struggled to access the finance they needed to make a success of their firms, whilst in others they failed to appropriately manage the firms cash flow effectively. Furthermore finance providers and VC firms were heavily influenced by the vacillating market situation and stopped supporting firms when the market became too risky. This situation was discussed by E20 – *“we had another investor that was prepared at the time to put in 10 million (euro), contracts were sent to his solicitor, the last morning we met he said ‘It’s not a good day to be investing in telecom because I could have picked Smart Telecom up this morning for €1’, it was in the Irish Times that day about how Smart Telecom and its debt were sold for €1”*.

Table 2 outlines excerpts of supporting data detailing the various primary attributions cited by the entrepreneurs in this study.

Table 2 Entrepreneurs Attributions for Business Failure

Attribution	Primary Attribution Category and Example
Internal Individual Level	
<i>Inexperience</i>	<ul style="list-style-type: none"> - I either had to take a step back from the engineering end of it and actually manage my business or stick with engineering which I was actually good at. E1 - I was 21 years old...I went out and started a huge business ...we just started out spend, spend, spend...we didn't do anything it was just basically me trying to support a team where we didn't actually have a plan in place... I raised the cash based on that but it was a business plan that was thrown in the bin as soon as the cash came in. E2 - I'm not an IT person so I wasn't in a position to sort of question the technicalities of what was happening. E3 I studied electrical engineering and electronics...we needed more support around feasibility. E4 - I recognised that I needed to develop those (business) skills...I did a diploma in Business Development after the firm ended. E5 - I didn't have IT experience and the product was heavily IT dependent the guy dealing with the IT side of things went off to work on another project. E6
<i>Commitment</i>	<ul style="list-style-type: none"> - We went on far too long. E7 - Realistically we should have pulled the plug about 6 months before that but vanity, ego kept it going. E8
External Firm Level	
<i>Poor market research</i>	<ul style="list-style-type: none"> - First and foremost was that I didn't do a lot of the research properly. That's where we fell down really...ultimately the product was the problem so...we wouldn't have gone with the product therefore I wouldn't have set up the company. E9 - The American people would be going nuts for something like that and one of the biggest surprises for me was that in Ireland people just didn't...the Irish people just didn't believe in them...we weren't getting any customers. E10
<i>Excessive niche market focus</i>	<ul style="list-style-type: none"> - There was no business without X [major Irish airline]. E11 - We tendered two particular projects (for major mobile carriers) and once we hadn't got any work from either of those that was it like, we knew there's no point in continuing on. E12 - Because Ireland is so small customers remain loyal so when you are the new kid on the block its very hard to get people to switch to build up a customer base. E13
External Market Level	
<i>Market turbulence</i>	<ul style="list-style-type: none"> - (Industry players were) running around like headless chickens (leading to) spectacular failures. E14 - Firms just disappearing, that whole business evaporating. E15 - Circumstances of 9/11 and the cost of insurance had changed the marketplace for I.T. services. E16
Hybrid	
<i>Venture timing</i>	<ul style="list-style-type: none"> - I'd lost my business partner...I decided to put this on the back burner for a few months...then 6 months became 12 months and 12 months became 2 years ...if you've missed the boat you've missed the boat E17 - I think the major issue was...the firm had to come in reasonably late into the (VC) fund E18 - The immaturity of the technology at the time was difficult E19
<i>Access to capital</i>	<ul style="list-style-type: none"> - We had another investor that was prepared at the time to put in 10 million, contracts were sent to his solicitor, the last morning we met he said 'It's not a good day to be investing in telecom because I could have picked Smart Telecom up this morning for €1". It was in the <i>Irish Times</i> that day about how Smart Telecom and its debt were sold for €1. E20 - the real reason for failing was finance tightened up and the finance leases were no longer available. E21

Entrepreneurs' Responses

Cognitive, affective, and behavioural responses were evident from entrepreneurs following failure. Particular primary responses are found to be linked to certain primary attributions. For instance an emotional, affective response was elicited from entrepreneurs primarily attributing failure to internal individual ascriptions. The entrepreneurs were impacted not only professionally, but also personally. As the failure process unfolded the entrepreneurs experienced a range of emotions, some are expected such as anxiety (E1), disappointment (E3; E6; E8) and stress (E5; E4). However the failure process also led to feelings of relief (E8; E1), optimism (E2), and happiness (E8) when the experience ultimately ends. The failure experience is a deeply personal journey, as the entrepreneurs referred to feelings of loneliness and being alone (E5; E2; E4; E3) during the process.

Entrepreneurs primarily attributing failure to external firm-level ascriptions had a clinical response to their firms' failure. There is a degree of detachment at least at a personal level. The general response to the failure is summed up by E9 who states, *"I wasn't emotionally attached to it"*, external ascriptions put a degree of separation between the individual and the failure. Those primarily attributing failure to external market-level ascriptions respond in a positive manner. They are pragmatic as their initial emotions are relief (E14) and happiness (E15; E16) as they understand the failure process is coming to an end. This is evidenced by E16 who remarked, *"I was quite happy financially that it was not incurring more costs"*. Similarly E14 found that *"it was hard to give attention and focus to everything"* and so was satisfied with the freedom afforded by the culmination of the firm. The entrepreneurs attributing failure to both external firm-level and market-level ascriptions moved on quickly from the failure; if emotions are felt they are generally positive. They do not dwell on the failure rather they adapt quickly to their changed professional status and focus on other projects. Thus their response is largely behavioural rather than affective or cognitive.

Finally those primarily attributing failure to hybrid ascriptions had a reflective response and spent time contemplating and analysing the various aspects that led to firm failure. For some, emotion was present as E20 described the process as *"like someone, like a child, you're building this business, you're watching it grow, you're*

seeing it develop, you knew there's a problem, you knew the reality of the situation, without money its difficult". Conversely E17 detailed being *"disappointed but that was it, just a bit disappointed"* whilst another understood the difficulty of the situation but appreciated the experience they attained, as such describing their feelings as *"mixed"* (E19). The response of entrepreneurs who see the failure of their firm as being largely the result of hybrid ascriptions have a predominantly cognitive response to the failure, whereby they evaluate and think through their experience as a means of better understanding it.

Learning Dimensions

This section captures learning from the failure experience. In a sense it captures entrepreneurs' perceived learning; that said, as all have gone on to re-enter the entrepreneurial setting, it can be considered actual learning as it is grounded in having had the opportunity to put into practice, in a new venture, what they indicated learning. In other words, their reported learning indeed reflects actual learning. Primarily attributing failure to internal individual-level ascriptions resulted in a learning experience that centred on oneself. The entrepreneurs had a steep learning curve, likely stemming from their inexperience. The skills deficit the entrepreneurs had when embarking on their initial venture resulted in a highly personalized form of learning, the benefits of which were evident. Not only did they learn about the practical aspects of starting a business, they also learned about themselves as human actors. The experience enabled the entrepreneurs to have more patience (E1), optimism (E3), humility (E8), and faith in themselves (E2), whilst also teaching them to be less gullible (E4), and to *"wake up!"* (E7). The failure experience was a personal growth journey born out of an emotional response to the onset of failure.

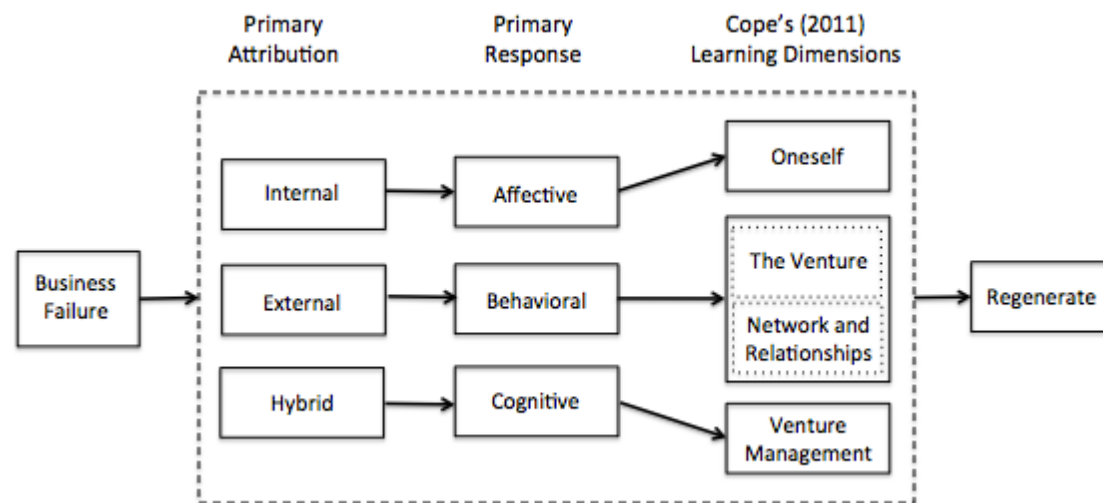
When external firm-level ascriptions were regarded as the primary ascriptions for failure learning is confined to general observations about business venturing that directly relate to their experience. It is learning that emerges without deep reflection. The entrepreneurs note that *"Ireland is a small market"* (E11) and that it is important to conduct research (E9). The learning evidenced related entirely to business venturing, such as the need for research (E9; E13) and planning (E10; E11). For entrepreneurs attributing failure primarily to external market-level ascriptions learning is related to relationships and networks. When asked what was learned from

the experience E16 stated, *“I learned that partners can let you down”*, in a similar vein E14 said, *“we learned a lot, we would have done things differently, like we hadn’t our partner tied in a non-compete clause so he took some clients with him”*. Somewhat differently E15 discussed the importance of getting advice *“from people that have been down that road already”*.

Hybrid ascriptions as the primary attribution for failure resulted in whole range of learning. They learned about themselves as E17 detailed gaining *“a lot of confidence”* and E20 learned to heed their *“gut instinct”*; however practical lessons on business venturing were also acquired. E19 explains, *“I learned it takes a lot of finance, I learned about the technical side...I got an insight into the sales and marketing world as well”*. Similarly E18 became skilled on *“the required capital structure to build a business”*, while E17 learned *“a lot about setting up a company”* and E21 appreciated the role of planning in starting a new business. E17 appreciated the exposure of meeting senior people for funding and E20 learned that *“if somebody is committing money into a project get it all upfront not in stage payments”*. Ultimately entrepreneurs’ primarily attributing failure to hybrid ascriptions resulted in a reflective cognitive response, in turn allowing them to become better acquainted with venture management.

The findings broadly show a process relationship between attributions, responses, and learning dimensions. Figure 2 highlights the relationships between the three elements in a process model. It shows entrepreneurs’ primary attributions for failure resulted in one of three primary responses that in turn lead to particular learning dimensions. Essentially those ascribing blame primarily to internal factors exhibited an affective response to failure and learning was predominantly about oneself; when blame was primarily ascribed to external factors the response was mainly behavioural and learning was concentrated on the venture, and network and relationships; finally if blame was a hybrid mix of internal and external ascriptions the response was largely cognitive and learning centred on venture management. Following an acknowledgment of the studies limitations, these findings will be reviewed with respect to the current literature in the forthcoming discussion section.

Figure II Underlying Processes Affecting Learning for Regenerative Failures



Limitations

Like all studies the design and methodology has limitations. Depth was chosen over a large quantitative study and this makes generalisability problematic. Furthermore the study is based on a niche sector, operating in a specific geographical context during a particular timeframe, thus the ability to make large-scale inferences from the findings are tentative at best. However this specificity of context ensures the firms in the study were operating in an environment with broadly similar ecological and industrial affects, this in turn allows for better comparability between entrepreneurial experiences. Another limitation arises from the fact that the study is not a real time examination of business failure but a retrospective analysis. However according to Sheppard and Chowdhury (2005) some longitudinal methods such as a real time study of events are not appropriate for studying an ex post facto phenomenon such as failure. Furthermore the authors made every effort to limit possible cases of retrospective bias by engaging secondary data gathered from the FAME database and online sources in order to create a timeline of the businesses' evolutions, signposting key events and utilizing those events as prompts in the semi-structured interviews.

Discussion

This study explores the processes that occur between attribution and learning in a regenerative failure context. As noted previously, many scholars agree that attribution

influences learning (Mantere *et al.*, 2013), yet the link between the two is unclear (Yamakawa and Cardon, 2015). The findings shed light on the underlying mechanism of learning from failure. As recognised in the literature (Yamakawa *et al.* (2015; Ucbasaran *et al.*, 2013), an individuals' cognitive, affective, and behavioural responses to failure are important to consider. Not only are ones responses likely to be affected by ones attributions for the failure (Yamakawa *et al.*, 2015), they are likely to influence ones learning from the failure experience (Cope, 2011; Shepherd, 2009).

Entrepreneurs primarily attributing failure to internal individual-level ascriptions respond in an emotional, affective manner, ultimately resulting in deep personal learning. Entrepreneurship can be an emotional journey (Baron, 2008) and failure an intensely affective experience (Shepherd *et al.*, 2009; Cope, 2011); failure can fracture the emotional bond between the entrepreneur and the idea (Shepherd and Kuratko, 2009; Wolfe and Shepherd, 2015). The emotional costs of failure may be aggravated, and an individual's self-esteem damaged, if they believe their self-worth is attached to the venture (Crocker and Wolfe, 2001). Yet taking responsibility can be a form of catharsis (Mantere *et al.*, 2013). In this study, entrepreneurs primarily attributing failure to internal factors suffered emotionally, however the impact of the experience ultimately had a positive effect as it allowed them to grow and develop not only professionally, but personally too. Whilst an emotional response to failure can lead to deep personal learning, negative emotional responses may interfere with an individuals' attention allocation in the processing of information.

According to existing studies (Shepherd, 2003; Cope, 2011), negative emotion, such as grief, is a significant obstacle to learning from failure. However, in this study entrepreneurs with a predominantly affective response did cite learning from the experience, yet the learning was limited to just one of Cope's (2011) four learning dimensions – *oneself*. It includes learning about one's own strengths and attitudes in addition to other personal skill development. This learning is transformative in nature (Mezirow, 1991), it is precipitated by crisis and "involves profound changes 'in the self' in relation to personal understanding and self-awareness" (Cope, 2011: 616). Cope (2011) suggests it is the distinctly personal dimension of failure that makes it such a powerful learning experience. Interpretation of entrepreneurs learning experience in this study further supports Cope's (2011) learning dimensions within

the regenerative failure context. Entrepreneurs in this group learn about the personal skills required for building a firm and coping with its demise. The focus on self and increased self-awareness is a driver for regeneration.

When external (firm-level and market-level) ascriptions are to blame, the response from entrepreneurs is predominantly behavioural in nature and learning relates to the venture, networks, and relationships. Ascribing failure to external firm-level factors results in clinical, detached behaviour towards the firm which may be a form of ego-protection, as those overconfident in their abilities are more likely to blame failure on factors outside of their control (Busenitz and Barney, 1997; Eggers and Song, 2015). Similarly attributing failure to external market-level ascriptions allows entrepreneurs to view the failure as occurring due to factors wholly independent of themselves (Rogoff *et al.*, 2004). There is complete distance between the individual actor and the perceived failure cause, allowing the entrepreneur to deal with the matter relatively unclouded by emotion. According to Libby and Eibach (2002), when individuals gain distance from an event they have the ability to view it as an external observer rather than a participant; they argue that it is the passing of time that provides this distance. However based on this study, the authors argue that entrepreneurs at the centre of a failure event can also gain distance from it if they perceive it is caused by factors completely outside of their control. In such circumstances entrepreneurs may act in a similar mode as an external agent, as they do not feel personally responsible for the failure.

Individuals in this group focus on factual knowledge (e.g. the market is too small; don't depend too much on consultants) rather than engagement with deep-level concepts. Recent studies (Yamakawa and Cardon, 2015; Yamakawa *et al.*, 2015) suggest external failure ascriptions hinder learning from failure. However, although this approach may stymie transformative learning it also provides the detachment necessary for understanding the failure without personalising it, thus enabling more general learning. This detachment provides the stability that drives regeneration. Entrepreneurs respond to the failure rapidly as they form an understanding of why it occurred and decide how best to adapt their behaviour in an effort to avoid failure in the future. Acting quickly following failure may be the most progressive response to

failure for certain individuals. Entrepreneurial learning for this group aligns with Cope's (2011) learning task dimensions - *the venture, and networks and relationships*.

Entrepreneurs that regarded firm failure as resulting from hybrid ascriptions responded by reflecting on the experience and cognitively processing its occurrence. Learning, centred on *venture management*. Hybrid ascriptions are a mix of internal and external attributions, the acknowledgement of both illustrate the entrepreneurs willingness and ability to fully engage with the failure experience and appreciate the roles of varying factors within and outside of their control. Taking time to cognitively appraise the failure experience, offers a greater understanding of the interplay between the individual, their firm, and the market. This group provided rich descriptions of the various angles from which they perceived the failure process emerged, in addition to their role within that process. Reflection, a metacognitive process, allows individuals to better understand both the self and the event so future encounters are more informed (Rae *et al.*, 2013). However Cope (2011) cautioned against prolonged retrospective analysis, as it can be unproductive, citing the need for entrepreneurs to actively move on from the failure. As all entrepreneurs in this study re-emerged and re-entered the entrepreneurial setting, they did not overly prolong retrospection. Resultant learning relates to venture management, whereby they learned about their role within the business, and how best to develop and build a business. It is an all-encompassing learning experience and it aligns to Cope's (2011: 616) learning task dimension *venture management* which captures "learning how to run and control businesses more effectively in relation to the wider environment".

Conclusion

To date studies examining individual's attributions for business failure have been limited (Zacharakis *et al.*, 1999; Franco and Haase, 2010; Mantere *et al.*, 2013) and an even smaller pool of studies have begun to explore potential links between failure attributions and potential lessons one may learn from the experience (Mantere *et al.*, 2013; Shepherd 2003). Entrepreneurs' cognitive, affective, and behavioural responses to failure are examined, as they are the link between attributions and learning dimensions. Accurately identifying entrepreneurs' attributions is the first step to unlocking the "black box" of learning. Understanding responses to failure provides insights into the mechanisms that occur following attribution and prior to learning.

Cope's (2011) existing learning dimensions fully aligned with the learning dimensions emerging from this study. This is a testament to the validity of Cope's (2011) framework and serves to strengthen the learning dimensions from failure he developed, as his findings are replicated on a much larger scale (21 entrepreneurs compared to his study of 8).

Concerning regenerative failure, no study to date has examined the processes that take place between attribution and learning. Indeed only a small but growing number of studies have begun to investigate how prior failure impacts entrepreneurial learning for future venturing (Yamakawa *et al.*, 2015; Yamakawa and Cardon, 2015; Mandl *et al.*, 2016). These studies are important, as the learning cycle is not complete until the entrepreneur can test their new ideas in another context (Shepherd, 2003). Yet empirical evidence on entrepreneurial learning remains weak, the role of chance and circumstance increases the difficulties in separating lessons learned, from the 'noise' (Frankish *et al.*, 2013). Exploring entrepreneurial learning from failure amongst regenerative entrepreneurs enables the researchers to examine learning once the cycle is complete. One of the study's contributions to knowledge stems from modeling the Underlying Processes Affecting Learning for Regenerative Failures. The model depicts the processes that occur between business failure and regeneration through the lenses of attribution and learning.

Whilst many factors affect the learning capacity of entrepreneurs, two accepted factors are - attributions for failure (Eggers and Song, 2015), and responses to failure (Yamakawa *et al.*, 2015; Shepherd, 2003; Shepherd and Kuratko, 2009). Both are antecedents of learning; focusing on them enables the researchers to better understand the underlying processes at play (Yamakawa and Cardon, 2015). Furthermore whilst preliminary research shows that failure attributions influence future action, the way in which they impact future action is unclear (Mandl *et al.*, 2016; Yamakawa and Cardon, 2015). As this work considers attributions in conjunction with responses, and learning, it sheds light on all three, and their links with, and impact on, one another. Therefore this research is the first step to exploring the way in which failure attributions influence future action.

Yamakawa and Cardon (2015) argue that learning is amplified when entrepreneurs are willing to accept internal attributions for failure. This research finds that internal

attributions in fact amplify a particular type of learning – learning about oneself; internal attributions elicit an emotional response from failure, which triggers a personal form of learning. However, external attributions for failure result in a primarily behavioural response from entrepreneurs, leading to learning about the venture, and networks and relationships. Finally a third type of attribution – hybrid attribution (a mix of internal and external), captures the complex nature of ascribing blame for failure. Those ascribing failure to hybrid attributions primarily responded cognitively, taking time to reflect on the experience, which leads to learning about venture management. Thus this study highlights that different types of attributions trigger particular responses from the entrepreneur, which consequently leads to various learning outcomes from the failure experience.

Future Research Directions

This study deliberately concentrated on regenerative failures; when considering future research it would be insightful to explore the attributions, responses, and learning outcomes of those that chose not to enter entrepreneurship following failure. Furthermore examining whether the links found between attributions and learning dimensions found in this research, emerge in other industries and geographical settings would be useful to strengthen the validity of the emerging relationships. Such research could potentially re-conceptualise our understanding of the entrepreneurial learning process from business failure. This study provides a strong justification for future research to be focused on the entrepreneur and their personal experience of the failure process. In particular the psychological and emotional implications of closure and failure would open up the opportunity for established psychology discourse to be reinterpreted within the business context. Recent studies (Simmons *et al.*, 2014; Wolfe and Shepherd, 2015; Wennberg and DeTienne, 2014) have begun paving the way for a more nuanced understanding of failure. However fewer (Byrne and Shepherd, 2015; Khelil, 2016; Singh *et al.*, 2015) have satisfactorily examined the individual, human side of the experience and the way entrepreneurs' attention and identity influences their responses and activities during the failure process. This study is the first step to bridging the gap between attributions and learning, yet there is a need for future studies to focus on regenerative failure using different theoretical lens

and novel methodological approaches. This is particularly pertinent given entrepreneurs propensity for re-entry.

Future research that moves beyond the immediate aftermath of failure, and explores the complexity of the experience as it evolves over time would also provide interesting insights. Such research would explore the long-term impact failure has on regenerative entrepreneurs as they progress with their entrepreneurial careers. Thus a longitudinal study on regenerative failure would be welcome. This approach could show whether lessons learned from prior failure experience had a tangible impact on the performance and success of future ventures. Whilst past research (Yamakawa and Cardon, 2015) has heralded internal attributions for failure as being most conducive to amplifying learning from the experience; more research is needed to examine whether particular forms of learning are superior to others, particularly concerning future venture success following a failure experience. Finally, this study's exploratory approach means it focuses on identifying broad links between attribution, responses, and learning. The complex nature of attributions and responses meant the study concentrated on the entrepreneurs' primary attributions and initial primary responses. Future research that examines the iterative nature of responses in detail could shed light on the complex nuances that occur between attributions and learning; thus further enhancing our understanding of the antecedents of learning from failure.

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